

REMARKS/ARGUMENTS

Prior to entry of the instant amendment, claims 1-48 are pending in the subject application. By the instant amendment, claims 18-41 are canceled.

Applicants appreciate the Examiner's consideration of the Information Disclosure Statements filed on November 21, 2003, and June 10, 2004.

Applicants also appreciate the Examiner's acknowledgement of applicants' claim for foreign priority and receipt of a certified copy of the priority document.

Applicants also appreciate the Examiner's indication of the acceptability of the drawings filed on November 21, 2003.

Claims 1, 42 and 46 are independent. Claims 1-17 and 42-48 are presented to the Examiner for further prosecution on the merits.

A. Introduction

In the outstanding Office action, mailed May 3, 2005, the Examiner rejected claims 1-17 under 35 U.S.C. § 112, second paragraph, rejected claims 1-10, 13, 16-17 and 42-48 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,019,457 to Silverbrook (hereinafter "the Silverbrook reference") in view of U.S. Patent No. 4,894,664 to Pan (hereinafter "the Pan reference"), rejected claims 11-12 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook and Pan references and further in view of U.S. Patent No. 6,652,077 B1 to Maeng et al. (hereinafter "the Maeng et al. reference"), rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook and Pan references and further in view of U.S. Patent No. 6,595,627 to Min et al. (hereinafter "the Min et al. reference"), and rejected claim 15 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook and Pan references and further in view of U.S. Patent No. 6,120,135 to Murthy et al. (hereinafter "the Murthy et al. reference").

In the outstanding Office action, the Examiner rejected claims 1-17 under 35 U.S.C. second paragraph, as being indefinite for failing to particularly point out and distinctly the subject matter which applicants regard as the invention. Applicants respectfully e this rejection for at least the reasons set forth below.

Applicants respectfully submit that claim 1 is not indefinite. Claim 1 recites, in part:

Thus, the nozzle plate has a metal layer. Applicants respectfully submit that this is not indefinite. Further, applicants respectfully submit that this is not inconsistent with the disclosure provided in the specification and figures. For example, Figure 3B, reproduced below, discloses a nozzle plate 120 having a metal layer 128:

The specification is equally clear on this point. See, for example, the specification at page 9, lines 24-29, which discloses:

A nozzle plate 120 is formed on the substrate 110 having the lower ink chamber 131, the ink channel 136, and the manifold 137 formed thereon. The nozzle plate 120 includes a plurality of material layers stacked on the substrate 110. The plurality of material layers include first, second, and third passivation layers 121, 122, and 123, a metal layer 128 stacked on the third passivation layer 123 by electrical plating.

Since claim 1 clearly recites that the nozzle plate has a metal layer, applicants respectfully submit that claim 1 is not indefinite. Therefore, applicants respectfully request that this rejection be reconsidered and withdrawn.

C. Asserted Obviousness Rejection Over the Silverbrook and Pan References

In the outstanding Office action, the Examiner rejected claims 1-10, 13, 16-17 and 42-48 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook reference in view of the Pan reference. Applicants respectfully traverse this rejection. Applicants respectfully submit that the Examiner failed to set forth a *prima facie* case of obviousness, and that the proposed combination of the Silverbrook and Pan references fails to suggest, much less disclose, all elements of the rejected claims for at least the reasons set forth below.

Embodiments of applicants' novel ink-jet printheads include a heater disposed between dual ink chambers. Thus, claim 1 recites, in part, "the heater being located between the upper ink chamber and the lower ink chamber for heating ink contained in the lower and upper ink chambers," claim 42 recites, in part, "a heater, which is located between the lower ink chamber and the upper ink chamber to be positioned inside the ink chamber and heats the ink in the ink chamber to generate a bubble" and claim 46 recites, in part, "a heater, which is located between the lower ink chamber and the upper ink chamber and heats the ink in the ink chamber to generate a bubble."

In the outstanding Office action, the Examiner failed to set forth how these claim elements are met by the proposed combination of the Silverbrook and Pan references. The

Examiner asserted that the Silverbrook reference discloses a lower ink chamber with a heater above it, and asserted that the Pan reference discloses an upper ink chamber with a heater below it. *The Office action mailed May 3, 2005, at pages 3-4. See also FIG. 17 in the Silverbrook reference and FIG. 3 in the Pan reference.* However, the Examiner did not assert that the references, either alone or in combination, disclose or suggest, e.g., a “heater being located between the upper ink chamber and the lower ink chamber for heating ink contained in the lower and upper ink chambers,” as recited in claim 1. In fact, the references merely disclose printhead designs that applicants discussed in the “Description of the Related Art” section of the specification, namely back-shooting and top-shooting type printheads, in which a heater is disposed above or below an ink chamber, respectively.

Further, neither the Silverbrook nor the Pan reference suggests the desirability of modifying the prior art printheads to form a heater being located between the upper ink chamber and the lower ink chamber for heating ink contained in the lower and upper ink chambers. In the outstanding Office action, the Examiner asserted that the motivation to combine the Silverbrook and Pan references was for “eliminating adhesion, ink flow and alignment problems.” *The Office action mailed May 3, 2005, at page 6.* However, the proffered motivation appears to be merely a paraphrasing of the Abstract from the Pan reference. *See the Pan reference, Abstract, front page.* In other words, the Pan reference asserts that the printheads disclosed therein are capable of eliminating adhesion, ink flow and alignment problems. Thus, the cited motivation to extend the Silverbrook reference is, rather, a motivation to use the printheads of the Pan reference *instead of* those disclosed by the Silverbrook reference. In other words, while the Pan reference suggests the desirability of eliminating adhesion, ink flow and alignment problems, the applied art nowhere suggests that these results may be achieved by a heater located between the upper ink chamber and the

lower ink chamber for heating ink contained in the lower and upper ink chambers, as recited in claims 1, 42 and 46.

Applicants respectfully submit that claims 1, 42 and 46 are allowable over the cited prior art because there is no motivation to combine the Silverbrook and Pan references, and the proposed combination of the Silverbrook and Pan references fails to suggest, much less disclose, all the elements of claims 1, 42 and 46. The remaining rejected claims depend, either directly or indirectly, from claims 1, 42 or 46, and are believed to be similarly allowable. Therefore, applicants respectfully request that the Examiner reconsider and withdraw the rejection of these claims and provide an indication of allowance.

D. Remaining Obviousness Rejections

In the outstanding Office action, the Examiner rejected claims 11-12 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook and Pan references, further in view of the Maeng et al. reference, rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook and Pan references, further in view of the Min et al. reference, and rejected claim 15 under 35 U.S.C. § 103(a) as being unpatentable over the Silverbrook and Pan references, further in view of the Murthy et al. reference. Applicants respectfully traverse these rejections.

Applicants respectfully submit that the Maeng, Min and Murthy references relied upon to reject claims 11-12, 14 and 15 fail to provide the teachings, discussed above, that are missing from the Silverbrook and Pan references. Claims 11-12, 14 and 15 depend, either directly or indirectly, from claim 1. Accordingly, the proposed combinations of the Silverbrook and Pan references with the Maeng, Min and / or Murthy references fail to disclose or suggest all elements of the rejected claims for at least the reasons set forth above. Applicants respectfully submit that claims 11-12, 14 and 15 are in condition for allowance.

Therefore, applicants respectfully request that the Examiner reconsider and withdraw the rejections of these claims and provide an indication of allowance.

E. Conclusion

Since the cited prior art relied on to reject the claims of the subject application fails to render obvious the present invention as recited in claims 1-17 and 42-48, applicants respectfully submit that these claims are now in condition for allowance, and a notice to that effect is respectfully requested.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all pending claims is hereby requested.

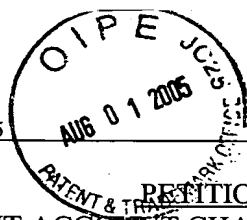
Respectfully submitted,

LEE & MORSE, P.C.

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Eugene M. Lee, Reg. No. 32,039

LEE & MORSE, P.C.
1101 WILSON BOULEVARD, SUITE 2000
ARLINGTON, VA 22209
703.525.0978 TEL
703.525.4265 FAX



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This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.